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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
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2644

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/784,569	Applicant(s) ARUN, UMA	
	Examiner Brian T. Pendleton	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments, see pages 9-11 of the amendment filed 9/22/04, with respect to the rejection(s) of **claim(s) 1-19** under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Cairns, US Patent Publication 2002/0097884.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 10, 12, 16, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Cairns. Cairns discloses a method and system of noise reduction based on vehicle conditions in figures 2 and 3 comprising receiving a plurality of vehicle conditions (step 210), creating a noise parameter based on the vehicle condition inputs (step 230) and adjusts a noise suppression algorithm of the hands-free system 30 based on the noise parameter (step 240). **Claims 1 and 10** are met. Per **claim 21**, there is inherently a vehicle communication bus since step 220 is directed toward communicating the detected vehicle conditions to the noise reduction control device 40. Per **claim 12**, the system uses microprocessors, thus inherently there is machine readable code for executing the method steps. Regarding **claims 5 and 16**, Cairns discloses sensing the position of vehicle seats 12 which is an internal vehicle condition.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2, 6-9, 13, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cairns in view of Dougherty. Regarding **claims 2 and 13**, in paragraph 12, Cairns suggests vehicle conditions, such as vehicle speed, motor rpm, seat position, etc., however Cairns does not disclose sensing an external vehicle condition. Dougherty discloses a noise estimation system for use with audio reproduction equipment. The system is applicable to a passenger compartment of a vehicle. Figures 7 and 8 disclose a sensor subsystem 610, gain control subsystem 512 and amplification system 510. Sensor subsystem 610 receives a plurality of vehicle condition inputs 622, 624, 626, 628, 630, 632, 634, 636 which is used by address generator 612 and noise table memory device 614 to generate noise estimate signals, said estimate signals used to control the gain in three frequency bands. Dougherty discloses vibration sensor 626 which senses the vibration caused by the tires and road surface which is an external vehicle condition. The sensed condition is sent to the gain control subsystem 512. Dougherty thus teaches receiving an external vehicle condition input and relating that external vehicle condition to a noise parameter which is used to aid in audio reproduction. Therefore, there existed a need in the art to sense external vehicle conditions with respect to noise estimation inside a vehicle. It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the external sensor 626 of Dougherty in the invention of Cairns for the purpose of improving the noise reduction algorithm by adding more noise sensors to create more noise parameters, those of which are externally generated. Per **claims 6 and 17**, Cairns discloses sensing a radio status and vehicle seat position, thus teaching sensing a plurality of internal

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vehicle conditions. Column 19 lines 8-36 of Dougherty disclose that the sensor outputs are combined to generate an address that looks-up a noise estimate. The combined sensor outputs would be sent to the hands-free system in the modified Cairns apparatus. As to **claims 7 and 18**, there is no patentable difference between transmitting the internal vehicle conditions as a combined signal, as taught by Dougherty, or transmitting the conditions individually to the hands-free system and then combining them. In either configuration, the system must combine the conditions to have an useful indication of the noise environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to transmit each of the plurality of internal vehicle conditions to the hands-free system and combine the received internal vehicle conditions. Per **claims 8 and 19**, Cairns discloses an ambient noise parameter in the form of the status of a vehicle window being open. It is combined with the created noise parameter from the position of the vehicle seats. As to **claim 9**, Dougherty discloses climate control fan 628.

Claims 3, 4, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cairns in view of Dougherty further in view of Kasai et al. Regarding **claims 3, 11 and 14**, the combination of Cairns and Dougherty discloses a variable noise reduction algorithm based on vehicle conditions, one of said conditions being an external condition (road surface vibrations). The combination however does not disclose sensing a plurality of external vehicle conditions, combining the external vehicle conditions and transmitting the combined external vehicle conditions to the hands-free system. Kasai discloses audio equipment for use in a vehicle whereby the audio signal from sound source 1 is modified by dynamic range controller 3 according to the noise detected by noise level detector 9A, as illustrated in figure 6. Figure 7(b)

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discloses that the noise level detector 9A includes a plurality of sensors indicating the external vehicle conditions. Tunnel passage sensor and road surface monitor are a plurality of external vehicle conditions. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the apparatus of Cairns and Dougherty to include the sensors taught by Kasai and combine the external vehicle conditions and transmit them to the hands-free system for the purpose of generating an improved noise estimate for applying a noise suppression algorithm since the more conditions sought, the better the estimate. Regarding **claims 4 and 15**, the combination of Cairns, Dougherty and Kasai do not explicitly state transmitting the external vehicle conditions individually to the hands-free system and then combining them. However, there is no patentable difference between transmitting the external vehicle conditions as a combined signal, as taught by Dougherty, or transmitting the conditions individually to the hands-free system and then combining them. In either configuration, the system must combine the conditions to have an useful indication of the noise environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to transmit each of the plurality of external vehicle conditions to the hands-free system and combine the received external vehicle conditions.

Claims **22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cairns. Regarding **claims 22 and 23**, Cairns does not disclose that the vehicle condition input includes a road input based on global positioning coordinates or an external vehicle climate input based on the weather outside the vehicle. However, it was suggested in Cairns to adjust a noise suppression algorithm according to vehicle conditions, such conditions that predict a noise condition inside of the vehicle. Without undue experimentation, one of ordinary skill in the art

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would have realized that road conditions, especially specific road locations determined through global positioning systems and climate conditions such as rain and sleet contributed to noise inside a vehicle and would affect the noise suppression algorithm of a hands-free system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include vehicle condition inputs of road input based on GPS and climate in the apparatus of Cairns for the purpose of improving the noise suppression capability of the hands-free device 30. As to claim 24, Official Notice is taken that the use and benefits of an audio device input, such as a microphone, for application in a noise suppression system in a vehicle for notoriously known at the time of invention. It would have been obvious to one of ordinary skill in the art at the time of invention to include such an audio device input any noise suppression apparatus since noise suppression is greatly improved if the noise is accurately measured through an audio device input.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vaishya, US Patent Publication 2004/0086135.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian T. Pendleton
Examiner
Art Unit 2644



btp